NOTE ON CERTAIN CLOUD FORMS OBSERVED AT TUCSON, ARIZ., AUGUST 18, 1924

551.576 (791)

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This note describes a certain form of cloud which has been seen a number of times during this unusually dry summer. At first glance this form resembles cirro-stratus, showing up to 5° altitude, long, nearly horizontal lines, occasionally inclined as much as 10° to the horizon. At higher elevations it looks like an etching in white against the otherwise clear blue sky, showing here and there groups of parallel lines or long sinuous curves. On June 3, 1924, near sunset, the crosshatching covered the western sky up to 30° altitude. The lines were a degree or so in width and 10° to 30° long and 2° or 3° apart. An attempt was made to photograph them without success.

On July 11 a similar and more pronounced display was seen near sunset from a moving train some 14 to 20 miles west of Needles, Calif. Again they had the crosshatching effect, covering the western sky up to 40° or 50° altitude. An attempt to photograph them showed only the nearly horizontal strata in the lower 5°. These seemed to me clearly different from cirro-stratus cloud. Their color was different, somewhat less white, and their outlines far softer and no fine detailed structure at all. In this observation some of the larger forms were watched for 15 minutes without important change. They faded away as night came on.

On August 18, at Tucson, a very brilliant display was first noted at 12.30 p. m. covering the western sky up to 30° or 40°. Photographs were taken but are not yet developed. At 1 p. m. the effect had spread over the whole sky, the bands overhead being 8° or 10° wide, perhaps 40° long, and very faint. In the east they were faint and smaller. A whitish haze surrounded the sun. The display lasted till about 5 o'clock. The western lines were horizontal in general effect yet usually in a wavy form like a rope that is thrown into stationary waves or a sine curve projected against the sky. There was a pronounced tendency for these long, soft, rippled lines to come in close pairs. By sighting on strong marks at 7° altitude a motion from near northwest was observed. Their height and real motion seemed worth trying for and were successfully obtained by rapid measures of altitude made at each end of a half-mile measured distance. A full measure consisted of altitudes at one end of the half mile and then the other end and then the first again. The distance was laid off on a straight road running east and west. It took about 10 minutes to get these three readings, and it was found advantageous to leave an observer at the first station, sighting carefully on the cloud form while the trip to and from the other station was being made. This was because continual change in the cloud lines was going on and pronounced forms lasted not much over 10 minutes. Seven measures were made of unequal value. Three good measures on well-defined points at low elevation gave 12,000, 14,000, and 20,000 feet altitude above the ground (elevation of Tucson is 2,400 feet above sea level).

Four poorer measures gave 7,300, 7,700, 10,000, and 28,000 feet. A general average of 15,000 feet or about 3 miles is probably some approximation to their height. Their motion was only a little over 4 miles per hour from north-northwest; this was for most of them a longitudinal motion.

The wind direction on that date was recorded as northwest and that evening a high current from west-northwest to northwest was seen in the big telescope. The attention of a number of townspeople was called to this phenomenon. Some said they had noted it on other occasions this summer. Quite a number of years ago, I observed a single band of this type of cloud moving longitudinally from west to east across the zenith. It was about 5° broad and probably 40° long. It obviously was not ordinary cloud.

Note added October 29, 1924.—Some of my photographs showed the special cloud forms on August 18, but the film had spoiled, and the pictures were not worth printing. I would like to say that since writing that note * * * I have observed the same type of cloud three or four times, and once under such conditions that I could identify them distinctly as a form of stratus cloud formed by the dissipation of cumulus clouds over a large, very dry valley bottom in which there was no irrigation or exposed water of any kind.

The clouds formed in the eastern side of this valley over the Tucson Mountains, 10 miles west of here. There was a slight easterly flow of air and the uprising clouds from that dry valley formed light cumulus clouds, and perhaps as the sun came to the west the upcurrent stopped, and the clouds dissipated along some layer where the motion of air was very slight.

MEETINGS OF THE METEOROLOGICAL SECTION OF THE INTERNATIONAL GEODETIC AND GEOPHYSICAL UNION, SECOND GENERAL ASSEMBLY, MADRID, SPAIN, OCTOBER 1–8, 1924[1]

551.5 (082.2)

By HERBERT H. KIMBALL

[U. S. Weather Bureau, Washington, D. C., December 16, 1924]

SYNOPSIS

The section held sessions for the discussion of its agenda on four half days, and an additional half day was devoted to joint sessions with the sections of Hydrology, Oceanography, and Terrestrial Magnetism and Atmospheric Electricity. The results of the discussions are embodied in a series of 27 resolutions, which may be classified as follows:

(*a*) Resolutions 4, 5, 14, and 15, in which questions were referred to some other organization for action.

(*b*) Resolutions 1, 6, 9, 11, 12, 13, 20, 21, 23, 24, 25, and 27, which express an opinion, or make a recommendation, but do not contemplate action on the part of the section.

(*c*) Resolutions 2, 3, 7, 8, 10, 16, 17, 18, 19, 22 and 26, which call for action on the part of the section.

Under (*a*) the 4 resolutions refer to cloud classification and the measurement of cloud heights; the centralization of meteorological observations made at sea; and trans-Atlantic steamer tracks.

Under (*b*) the 12 resolutions refer to the collection of publications of the Union in designated libraries; the determination of the variability of the hydrogen content of the atmosphere; spectral measurements of solar radiation at Izana, Canary Islands: the extension of radiotelegraphic transmission of meteorological observations; daily observations of temperature and pressure in the free air; an increase in the number of hydrological and meteorological stations in mountainous districts; the simplification of the Gregorian calendar; extension and improvement of the network of stations in the south Pacific; observations of air-borne parasites;

[1] Paper presented before the meeting of the American Meteorological Society, Washington, D. C., January 2, 1925.